

may determine that segment **504** is more suitable for inserting APC. However, although APC may be inserted within segment **504**, subsegment **512** may represent a cutoff period in which spectators may no longer provide APC input.

[0073] Segment **506** is shown to be a period of low albeit non-zero activity. In these circumstances, the VR content manager **310** may determine that only certain types of APC are permissible, such as APC communications but not APC votes or APC tasks. Segment **508** is shown to be a period of zero activity, much like segment **504**. However the solid circled region within segment **508** indicates that no APC is to be inserted. There may be a number of reasons that APC insertion logic **314** is disallowed to insert APC even during segments with low or zero activity.

[0074] In certain embodiments, the HMD user may override or veto APC to be inserted during certain periods. In other embodiments, VR content manager **310** may determine that there are no game-related variables that are suitable to be subject to APC. In still other embodiments, APC insertion logic **314** may determine that segment **508** does not allow enough time for an APC in general, or as instructed by APC generator **312**. For example, not all APCs take a same amount of time. Some APCs may have a turnaround time of less than about 10 seconds, while other may take up to about 5 or more minutes. Thus, APC insertion logic **314** may communicate with APC generator **312** to determine segment **508** allow enough time, while segment **518** will.

[0075] Segment **510** shows a VR content segment with a variable activity level. For example, in sub-segment **514**, the activity rate is high, whereas it tapers to a lower rate in sub-segment **516**. In some embodiments, VR insertion logic **314** may determine that APC may be inserted towards the end of segment **510**, but not at its beginning.

[0076] FIG. 6 shows a representation of VR content **600** in terms of a game state **604** over time **602**. Over the course of time **602**, the VR content may experience causal changes its game state depending on APC. For example, APC call **606** includes a vote between one of three in-game assets. The APC outcome, the soup ladle causally affects the game state insofar as it changes the HMD user's ability to progress in the game or at least some visual or functional aspect of the VR scene. The same is true of APC call **608**, which requests spectators to choose from one of four enemy bosses. In APC communication **610**, a spectator provides a communication containing a trap. Additionally, APC call **612** may include a level up, a game asset (donation), some other type of content such as a snap, a GIF, a picture, an emoji, or it could be a request for the HMD user to switch turns.

[0077] FIG. 7 illustrates an additional embodiment of an HMD **702** that may be used with the presented method and/or system. HMD **702** includes hardware such as a processor **704**, battery **706**, virtual reality generator **708**, buttons, sensors, switches **710**, sound localization **712**, display **714**, and memory **716**. HMD **702** is also shown to include a position module **728** that comprises a magnetometer **718**, an accelerometer **720**, a gyroscope **722**, a GPS **724**, and a compass **726**. Further included on HMD **102** are speakers **730**, microphone **732**, LEDs **734**, object/s for visual recognition **736**, IR lights **738**, front camera **740**, rear camera **742**, gaze tracking cameras **744**, USB **746**, permanent storage **748**, vibro-tactile feedback **750**, communications link **752**, WiFi **754**, ultra-sonic communication **756**, Bluetooth **758**, and photo-sensitive diodes (PSD) **760**.

[0078] Although the method operations were described in a specific order, it should be understood that other house-keeping operations may be performed in between operations, or operations may be adjusted so that they occur at slightly different times, or may be distributed in a system which allows the occurrence of the processing operations at various intervals associated with the processing, as long as the processing of the changing of VR operations are performed in the desired way.

[0079] One or more embodiments can also be fabricated as computer readable code on a computer readable medium. The computer readable medium is any data storage device that can store data, which can be thereafter be read by a computer system. Examples of the computer readable medium include hard drives, network attached storage (NAS), read-only memory, random-access memory, CD-ROMs, CD-Rs, CD-RWs, magnetic tapes and other optical and non-optical data storage devices. The computer readable medium can include computer readable tangible medium distributed over a network-coupled computer system so that the computer readable code is stored and executed in a distributed fashion.

[0080] Although the foregoing embodiments have been described in some detail for purposes of clarity of understanding, it will be apparent that certain changes and modifications can be practiced within the scope of the appended claims. Accordingly, the present embodiments are to be considered as illustrative and not restrictive, and the embodiments are not to be limited to the details given herein, but may be modified within the scope and equivalents of the appended claims.

What is claimed is:

1. A computer-implemented method for processing operations for integrating audience participation content into virtual reality (VR) content presented by a head mounted display (HMD) of an HMD user, comprising:

providing a VR scene to the HMD of the HMD user;
receiving indications from one or more spectator devices of respective one or more spectators, the indications corresponding to requests for audience participation content for participating in the VR scene;

sending audience participation content to the one or more spectator devices, the audience participation content configured to be displayed on respective displays associated with the one or more spectator devices, the audience participation content including interactive content for obtaining spectator input from the one or more spectators via the one or more spectator devices, respectively; and

augmenting the VR scene based on the spectator inputs in response to the interactive content of the audience participation content.

2. The computer-implemented method of claim 1, wherein the indications corresponding to requests for audience participation content includes quick response (QR) codes, drawings, audio sounds, images, graphics, or a combination of two or more thereof.

3. The computer-implemented method of claim 1, wherein the audience participation content further configures the one or more spectator devices to detect respective spectator inputs in response to touch inputs made by the one or more spectators while interacting with the interactive content on the respective one or more spectator devices.